

Strategy List: 35 Dimensions of Critical Thought

Formally Named

We have broken the global concept of critical thinking down into 35 aspects or instructional strategies. These strategies are linked to the following remodeled lessons plans:

K-3: Remodeled Lesson Plans

4-6: Remodeled Lesson Plans

6-9: Remodeled Lesson Plans

High School: Remodeled Lesson Plans

A. Affective Strategies

- S-1 thinking independently
- S-2 developing insight into egocentricity or sociocentricity
- S-3 exercising fairmindedness
- S-4 exploring thoughts underlying feelings and feelings underlying thoughts
- S-5 developing intellectual humility and suspending judgment
- S-6 developing intellectual courage
- S-7 developing intellectual good faith or integrity
- S-8 developing intellectual perseverance
- S-9 developing confidence in reason

B. Cognitive Strategies - Macro-Abilities

- S-10 refining generalizations and avoiding oversimplifications
- S-11 comparing analogous situations: transferring insights to new contexts
- S-12 developing one's perspective: creating or exploring beliefs, arguments, or theories
- S-13 clarifying issues, conclusions, or beliefs
- S-14 clarifying and analyzing the meanings of words or phrases
- S-15 developing criteria for evaluation: clarifying values and standards
- S-16 evaluating the credibility of sources of information
- S-17 questioning deeply: raising and pursuing root or significant questions
- S-18 analyzing or evaluating arguments, interpretations, beliefs, or theories
- S-19 generating or assessing solutions
- S-20 analyzing or evaluating actions or policies
- S-21 reading critically: clarifying or critiquing texts
- S-22 listening critically: the art of silent dialogue
- S-23 making interdisciplinary connections
- S-24 practicing Socratic discussion: clarifying and questioning beliefs, theories, or perspectives
- S-25 reasoning dialogically: comparing perspectives, interpretations, or theories
- S-26 reasoning dialectically: evaluating perspectives, interpretations, or theories

C. Cognitive Strategies - Micro-Skills

- S-27 comparing and contrasting ideals with actual practice
- S-28 thinking precisely about thinking: using critical vocabulary
- S-29 noting significant similarities and differences
- S-30 examining or evaluating assumptions
- S-31 distinguishing relevant from irrelevant facts
- S-32 making plausible inferences, predictions, or interpretations
- S-33 giving reasons and evaluating evidence and alleged facts
- S-34 recognizing contradictions
- S-35 exploring implications and consequences

S-1 Thinking Independently

Principle: Critical thinking is independent thinking, thinking for oneself. Many of our beliefs are acquired at an early age, when we have a strong tendency to form beliefs for irrational reasons (because we want to believe, because we are praised or rewarded for believing). Critical thinkers use critical skills and insights to reveal and reject beliefs that are irrational.

In forming new beliefs, critical thinkers do not passively accept the beliefs of others; rather, they try to figure things out for themselves, reject unjustified authorities, and recognize the contributions of genuine authorities. They thoughtfully form principles of thought and action; they do not mindlessly accept those presented to them. Nor are they unduly influenced by the language of another.

If they find that a set of categories or distinctions is more appropriate than that used by another, they will use it. Recognizing that categories serve human purposes, they use those categories which best serve their purpose at the time. They are not limited by accepted ways of doing things. They evaluate both goals and how to achieve them. They do not accept as true, or reject as false, beliefs they do not understand. They are not easily manipulated.

Independent thinkers strive to incorporate all known relevant knowledge and insight into their thought and behavior. They strive to determine for themselves when information is relevant, when to apply a concept, or when to make use of a skill. They are self-monitoring: they catch their own mistakes; they don't need to be told what to do every step of the way.

S-2 Developing Insight Into Egocentricity or Sociocentricity

Principle: Egocentricity means confusing what we see and think with reality. When under the influence of egocentricity, we think that the way we see things is exactly the way things are. Egocentricity manifests itself as an inability or unwillingness to consider others' points of view, a refusal to accept ideas or facts which would prevent us from getting what we want (or think we want).

In its extreme forms, it is characterized by a need to be right about everything, a lack of interest in consistency and clarity, an all or nothing attitude ("I am 100% right; you are 100% wrong."), and a lack of self-consciousness of one's own thought processes. The egocentric individual is more concerned with the appearance of truth, fairness, and fairmindedness, than with actually being correct, fair, or fairminded. Egocentricity is the opposite of critical thought. It is common in adults as well as in children.

As people are socialized, egocentricity partly evolves into sociocentricity. Egocentric tendencies extend to their groups. The individual goes from "I am right!" to "We are right!" To put this another way, people find that they can often best satisfy their egocentric desires through a group.

"Group think" results when people egocentrically attach themselves to a group. One can see this in both children and adults: My daddy is better than your daddy! My school (religion, country, race, etc.) is better than yours. Uncritical thinkers often confuse loyalty with always supporting and agreeing, even when the other person or the group is wrong.

If egocentricity and sociocentricity are the disease, self-awareness is the cure. We need to become aware of our own tendency to confuse our view with "The Truth". People can often recognize when someone else is egocentric. Most of us can identify the sociocentricity of members of opposing groups. Yet when we ourselves are thinking egocentrically or sociocentrically, it seems right to us (at least at the time).

Our belief in our own rightness is easier to maintain because we ignore the faults in our thinking. We automatically hide our egocentricity from ourselves. We fail to notice when our behavior contradicts our self-image. We base our reasoning on false assumptions we are unaware of making. We fail to make relevant distinctions (of which we are otherwise aware and able to make) when making them prevents us from getting what we want. We deny or conveniently "forget" facts that do not support our conclusions. We often misunderstand or distort what others say.

The solution, then, is to reflect on our reasoning and behavior; to make our beliefs explicit, critique them, and, when they are false, stop making them; to apply the same concepts in the same ways to ourselves and others; to consider every relevant fact, and to make our conclusions consistent with the evidence; and to listen carefully and openmindedly to others.

We can change egocentric tendencies when we see them for what they are: irrational and unjust. The development of children's awareness of their egocentric and sociocentric patterns of thought is a crucial part of education in critical thinking. This development will be modest at first but can grow considerably over time.

S-3 Exercising Fairmindedness

Principle: To think critically, we must be able to consider the strengths and weaknesses of opposing points of view; to imaginatively put ourselves in the place of others in order to genuinely understand them; to overcome our egocentric tendency to identify truth with our immediate perceptions or long-standing thought or belief.

This trait is linked to the ability to accurately reconstruct the viewpoints and reasoning of others and to reason from premises, assumptions, and ideas other than our own. This trait also requires the willingness to remember occasions when we were wrong in the past despite an intense conviction that we were right, as well as the ability to imagine our being similarly deceived in a case at hand. Critical thinkers realize the unfairness of judging unfamiliar ideas until they fully understand them.

The world consists of many societies and peoples with many different points of view and ways of thinking. To develop as reasonable persons, we need to enter into and think within the frameworks and ideas of different peoples and societies.

We cannot truly understand the world if we think about it only from one viewpoint, as Americans, as Italians, or as Soviets. Furthermore, critical thinkers recognize that their behavior affects others, and so consider their behavior from the perspective of those others.

S-4 Exploring Thoughts Underlying Feelings and Feelings Underlying Thoughts

Principle: Although it is common to separate thought and feeling as though they were independent, opposing forces in the human mind, the truth is that virtually all human feelings are based on some level of thought and virtually all thought generative of some level of feeling. To think with self-understanding and insight, we must come to terms with the intimate connections between thought and feeling, reason and emotion.

Critical thinkers realize that their feelings are their response (but not the only possible, or even necessarily the most reasonable response) to a situation. They know that their feelings would be different if they had a different understanding or interpretation of the situation.

They recognize that thoughts and feelings, far from being different kinds of "things", are two aspects of their responses. Uncritical thinkers see little or no relationship between their feelings and their thoughts, and so escape responsibility for their thoughts, feelings, and actions. Their own feelings often seem unintelligible to them.

When we feel sad or depressed, it is often because we are interpreting our situation in an overly negative or pessimistic light. We may be forgetting to consider positive aspects of our lives.

We can better understand our feelings by asking ourselves, "How have I come to feel this way? How am I looking at the situation? To what conclusion have I come? What is my evidence? What assumptions am I making? What inferences am I making? Are they sound inferences? Do my conclusions make sense? Are there other ways to interpret this situation?"

We can learn to seek patterns in our assumptions, and so begin to see the unity behind our separate emotions. Understanding ourselves is the first step toward self-control and self-improvement. This self-understanding requires that we understand our feelings and emotions in relation to our thoughts, ideas, and interpretations of the world.

S-5 Developing Intellectual Humility and Suspending Judgment

Principle: Critical thinkers recognize the limits of their knowledge. They are sensitive to circumstances in which their native egocentricity is likely to function self-deceptively; they are sensitive to bias, prejudice, and limitations of their views. Intellectual humility is based on the recognition that one should not claim more than one actually knows. It does not imply spinelessness or submissiveness.

It implies the lack of intellectual pretentiousness, arrogance, or conceit. It implies insight into the foundations of one's beliefs: knowing what evidence one has, how one has come to believe, what further evidence one might look for or examine. Thus, critical thinkers distinguish what they know from what they don't know. They are not afraid of saying "I don't know" when they are not in a position to be sure.

They can make this distinction because they habitually ask themselves, "How could one know whether or not this is true?" To say "In this case I must suspend judgment until I find out x and y", does not make them anxious or uncomfortable. They are willing to rethink conclusions in the light of new knowledge. They qualify their claims appropriately.

In exposing children to concepts within a field of knowledge, we can help them see how all concepts depend on other, more basic concepts and how each field is based on fundamental assumptions which need to be examined, understood, and justified. The class should often explore the connections between specific details and basic concepts or principles. We can help children discover experiences in their own lives which help support or justify what a text says. We should always be willing to entertain student doubts about what a text says.

Judgment

S-6 Developing Intellectual Courage

Principle: To think independently and fairly, one must feel the need to face and fairly deal with unpopular ideas, beliefs, or viewpoints. The courage to do so arises when we see that ideas considered dangerous or absurd are

sometimes rationally justified (in whole or in part) and that conclusions or beliefs inculcated in us are sometimes false or misleading.

To determine for ourselves which is which, we must not passively and uncritically accept what we have "learned". We need courage to admit the truth in some ideas considered dangerous and absurd, and the distortion or falsity in some ideas strongly held in our social group. It will take courage to be true to our own thinking, for honestly questioning our deeply held beliefs can be difficult and sometimes frightening, and the penalties for non-conformity are often severe. Judgment

S-7 Developing Intellectual Good Faith or Integrity

Principle: Critical thinkers recognize the need to be true to their own thought, to be consistent in the intellectual standards they apply, to hold themselves to the same rigorous standards of evidence and proof to which they hold others, to practice what they advocate for others, and to honestly admit discrepancies and inconsistencies in their own thought and action. They believe most strongly what has been justified by their own thought and analyzed experience.

They have a commitment to bringing the self they are and the self they want to be together. People in general are often inconsistent in their application of standards once their ego is involved positively or negatively. For instance, when people like us, we tend to over-estimate their positive characteristics; when they dislike us, we tend to underrate them

S-8 Developing Intellectual Perseverance

Principle: Becoming a more critical thinker is not easy. It takes time and effort. Critical thinking is reflective and recursive; that is, we often think back to previous problems to re-consider or re-analyze them. Critical thinkers are willing to pursue intellectual insights and truths in spite of difficulties, obstacles, and frustrations.

They recognize the need to struggle with confusion and unsettled questions over time in order to achieve deeper understanding and insight. They recognize that significant change requires patience and hard work. Important issues often require extended thought, research, struggle. Considering a new view takes time. Yet people are often impatient to "get on with it" when they most need to slow down and think carefully.

People rarely define issues or problems clearly; concepts are often left vague; related issues are not sorted out, etc. When people don't understand a problem or situation, their reactions and solutions often compound the original problem. Children need to gain insight into the need for intellectual perseverance.

S-9 Developing Confidence in Reason

Principle: The rational person recognizes the power of reason and the value of disciplining thinking in accordance with rational standards. Virtually all of the progress that has been made in science and human knowledge testifies to this power, and so to the reasonability of having confidence in reason.

To develop this faith in reason is to come to see that ultimately one's own higher interests and those of humankind at large will best be served by giving the freest play to reason, by encouraging people to come to their own conclusions through a process of developing their own rational faculties.

It is to reject force and trickery as standard ways of changing another's mind. It is to believe that, with proper encouragement and cultivation, people can develop the ability to think for themselves, to form reasonable points of view, draw reasonable conclusions, think clearly and logically, persuade each other by reason and, ultimately, become reasonable persons, despite the deep-seated obstacles in the native character of the human mind and in society as we know it.

This confidence is essential to building a democracy in which people come to genuine rule, rather than being manipulated by the mass media, special interests, or by the inner prejudices, fears, and irrationalities that so easily and commonly dominate human minds.

You should note that the act of faith we are recommending is not blind faith, but should be tested in everyday experiences and academic work. In other words, we should have confidence in reason because reason works. Confidence in reason does not deny the reality of intuition; rather, it provides a way of distinguishing intuition from prejudice. When we know the source of our thinking and keep our minds open to new reason and evidence, we will be more likely to correct our prejudiced thought.

At the heart of this principle of faith in reason is the desire to make sense of the world and the expectation that sense can be made. Texts often don't make sense to children, sometimes because what they say doesn't make sense, more often because children aren't given time to make sense out of what they are told.

Being continually called upon to "master" what seems nonsensical undermines the feeling that one can make sense of the world. Many children, rushed through mountains of material, give up on this early. ("If I try to make sense of this, I'll never finish. Trying to really understand just slows me down. Nobody expects me to make sense of this; they just want me to do it.")

S-10 Refining Generalizations and Avoiding Oversimplifications

Principle: It is natural to seek to simplify problems and experiences to make them easier to deal with. Everyone does this. However, the uncritical thinker often oversimplifies and as a result misrepresents problems and experiences.

What should be recognized as complex, intricate, ambiguous, or subtle is viewed as simple, elementary, clear, and obvious. For example, it is typically an oversimplification to view people or groups as all good or all bad, actions as always right or always wrong, one contributing factor as the cause, etc., and yet such beliefs are common.

Critical thinkers try to find simplifying patterns and solutions, but not by misrepresentation or distortion. Seeing the difference between useful simplifications and misleading oversimplifications is important to critical thinking.

Critical thinkers scrutinize generalizations, probe for possible exceptions, and then use appropriate qualifications. Critical thinkers are not only clear, but also exact and precise. One of the strongest tendencies of the egocentric, uncritical mind is to see things in terms of black and white, "all right" and "all wrong". Hence, beliefs which should be held with varying degrees of certainty are held as certain. Critical thinkers are sensitive to this problem.

They understand the important relationship of evidence to belief and so qualify their statements accordingly. The tentativeness of many of their beliefs is characterized by the appropriate use of such qualifiers as 'highly likely', 'probably', 'not very likely', 'highly unlikely', 'often', 'usually', 'seldom', 'I doubt', 'I suspect', 'most', 'many', and 'some'.

S-11 Comparing Analogous Situations: Transferring Insights to New Contexts

Principle: An idea's power is limited by our ability to use it. Critical thinkers' ability to use ideas mindfully enhances their ability to transfer ideas critically. They practice using ideas and insights by appropriately applying them to new situations. This allows them to organize materials and experiences in different ways, to compare and contrast alternative labels, to integrate their understanding of different situations, and to find useful ways to think about new situations.

Every time we use an insight or principle, we increase our understanding of both the insight and the situation to which we have applied it. True education provides for more than one way to organize material. For example, history can be organized in our minds by geography, chronology, or by such phenomena as repeated patterns, common situations, analogous "stories", and so on. The truly educated person is not trapped by one organizing principle, but can take knowledge apart and put it together many different ways. Each way of organizing knowledge has some benefit.

S-12 Developing One's Perspective: Creating or Exploring Beliefs, Arguments, or Theories

Principle: The world is not given to us sliced up into categories with pre-assigned labels on them. There are always many ways to "divide up" and so experience the world. How we do so is essential to our thinking and behavior. Uncritical thinkers assume that their perspective on things is the only correct one. Selfish critical thinkers manipulate the perspectives of others to gain advantage for themselves.

Fairminded critical thinkers learn to recognize that their own ways of thinking and that of all other perspectives are some combination of insight and error. They learn to develop their points of view through a critical analysis of their experience.

They learn to question commonly accepted ways of understanding things and avoid uncritically accepting the viewpoints of their peers or society. They know what their perspectives are and can talk insightfully about them. To do this, they must create and explore their own beliefs, their own reasoning, and their own theories.

S-13 Clarifying Issues, Conclusions, or Beliefs

Principle: The more completely, clearly, and accurately an issue or statement is formulated, the easier and more helpful the discussion of its settlement or verification. Given a clear statement of an issue, and prior to evaluating conclusions or solutions, it is important to recognize what is required to settle it. And before we can agree or disagree with a claim, we must understand it clearly.

It makes no sense to say "I don't know what you mean, but I deny it, whatever it is." Critical thinkers recognize problematic claims, concepts, and standards of evaluation, making sure that understanding precedes judgment. They routinely distinguish facts from interpretations, opinions, judgments, or theories. They can then raise those questions most appropriate to understanding and evaluating each.

S-14 Clarifying and Analyzing The Meanings of Words or Phrases

Principle: Critical, independent thinking requires clarity of thought. A clear thinker understands concepts and knows what kind of evidence is required to justify applying a word or phrase to a situation. The ability to supply a definition is not proof of understanding. One must be able to supply clear, obvious examples and use the concept appropriately. In contrast, for an unclear thinker, words float through the mind unattached to clear, specific, concrete cases. Distinct concepts are confused.

Often the only criterion for the application of a term is that the case in question "seems like" an example. Irrelevant associations are confused with what are necessary parts of the concept (e.g., "Love involves flowers and candlelight.") Unclear thinkers lack independence of thought because they lack the ability to analyze a concept, and so critique its use.

S-15 Developing Criteria for Evaluation: Clarifying Values and Standards

Principle: Critical thinkers realize that expressing mere preference does not substitute for evaluating something. Awareness of the process or components of evaluating facilitates thoughtful and fairminded evaluation. This process requires developing and using criteria or standards of evaluation, or making standards or criteria explicit.

Critical thinkers are aware of the values on which they base their judgments. They have clarified them and understand why they are values. When developing criteria, critical thinkers should understand the object and purpose of the evaluation, and what function the thing being evaluated is supposed to serve. Critical thinkers take into consideration different points of view when attempting to evaluate something.

S-16 Evaluating the Credibility of Sources of Information

Principle: Critical thinkers recognize the importance of using reliable sources of information. They give less weight to sources which either lack a track record of honesty, are not in a position to know, or have a vested interest in the issue. Critical thinkers recognize when there is more than one reasonable position to be taken on an issue; they compare alternative sources of information, noting areas of agreement; they analyze questions to determine whether or not the source is in a position to know; and they gather more information when sources disagree.

They recognize obstacles to gathering accurate and pertinent information. They realize that preconception, for example, influences observation—that we often see only what we expect to see and fail to notice things we aren't looking for.

S-17 Questioning Deeply: Raising and Pursuing Root or Significant Questions

Principle: Critical thinkers can pursue an issue in depth, covering various aspects in an extended process of thought or discussion. When reading a passage, they look for issues and concepts underlying the claims expressed. They come to their own understanding of the details they learn, placing them in the larger framework of the subject and their overall perspectives. They contemplate the significant issues and questions underlying subjects or problems studied. They can move between basic underlying ideas and specific details.

When pursuing a line of thought, they are not continually dragged off the subject. They use important issues to organize their thought and are not bound by the organization given by another. Each of the various subject areas has been developed to clarify and settle questions peculiar to itself. (For example, history: How did the world come to be the way it is now?) The teacher can use such questions to organize and unify details covered in each subject.

Perhaps more important are basic questions everyone faces about what people are like, the nature of right and wrong, how we know things, and so on. Both general and subject-specific basic questions should be repeatedly raised and used as a framework for organizing details children are learning

S-18 Analyzing or Evaluating Arguments, Interpretations, Beliefs, or Theories

Principle: Rather than carelessly agreeing or disagreeing with a conclusion based on their preconceptions of what is true, critical thinkers use analytic tools to understand the reasoning behind it and determine its relative strengths and weaknesses. When analyzing arguments, critical thinkers recognize the importance of asking for reasons and considering other views.

They are especially sensitive to possible strengths of arguments that they disagree with, recognizing the tendency to ignore, oversimplify, distort, or otherwise unfairly dismiss them. Critical thinkers analyze questions and place conflicting arguments, interpretations, and theories in opposition to one another, as a means of highlighting key concepts, assumptions, implications, etc.

When giving or being given an interpretation, critical thinkers, recognizing the difference between evidence and interpretation, explore the assumptions on which interpretations are based and propose and evaluate alternative interpretations for their relative strength. Autonomous thinkers consider competing theories and develop their own theories.

S-19 Generating or Assessing Solutions

Principle: Critical problem-solvers use everything available to them to find the best solution they can. They evaluate solutions, not independently of, but in relation to one another (since 'best' implies a comparison).

They take the time to formulate problems clearly, accurately, and fairly, rather than offering a sloppy, half-baked, or self-serving description ("Susie's mean!" "This isn't going well, how can we do it better?") and then immediately leaping to solutions. They examine the causes of the problem at length.

They reflect on such questions as, "What makes some solutions better than others? What does the solution to this problem require? What solutions have been tried for this and similar problems? With what results?" But alternative solutions are often not given, they must be generated or thought up.

Critical thinkers must be creative thinkers as well, generating possible solutions in order to find the best one. Very often a problem persists, not because we can't tell which available solution is best, but because the best solution has not yet been made available-no one has thought of it yet.

Therefore, although critical thinkers use all available information relevant to their problems, including solutions others have tried in similar situations, they are flexible and imaginative, willing to try any good idea whether it has been done before or not. Fairminded thinkers take into account the interests of everyone affected by the problem and proposed solutions. They are more committed to finding the best solution than to getting their way. They approach problems realistically.

S-20 Analyzing or Evaluating Actions and Policies

Principle: To develop one's perspective, one must analyze actions and policies and evaluate them. Good judgment is best developed through practice: judging behavior, explaining and justifying those judgments, hearing alternative judgments and their justifications, and assessing judgments. When evaluating the behavior of themselves and others, critical thinkers are aware of the standards they use, so that these, too, can become objects of evaluation.

Critical thinkers examine the consequences of actions and recognize these as fundamental to the standards for assessing behavior and policy. Critical thinkers base their evaluations of behavior on assumptions which they have reasoned through. They can articulate and rationally apply principles.

S-21 Reading Critically: Clarifying or Critiquing Texts

Principle: Critical thinkers read with a healthy skepticism. But they do not doubt or deny until they understand. They clarify before they judge. Since they expect intelligibility from what they read, they check and double-check their understanding as they read. They do not mindlessly accept nonsense. Critical readers ask themselves questions as they read, wonder about the implications of, reasons for, examples of, and meaning and truth of the material.

They do not approach written material as a collection of sentences, but as a whole, trying out various interpretations until one fits all of the work, rather than ignoring or distorting what doesn't fit their interpretation. They realize that everyone is capable of making mistakes and being wrong, including authors of textbooks.

They also realize that, since everyone has a point of view, everyone sometimes leaves out some relevant information. No two authors would write the same book or write from exactly the same perspective. Therefore, critical readers recognize that reading a book is reading one limited perspective on a subject and that more can be learned by considering other perspectives.

S-22 Listening Critically: The Art of Silent Dialogue

Principle: Critical thinkers realize that listening can be done passively and uncritically or actively and critically. They know that it is easy to misunderstand what is said by another and hard to integrate another's thinking into one's own. Compare speaking and listening. When we speak, we need only keep track of our own ideas, arranging them in some order, expressing thoughts with which we are intimately familiar: our own.

But listening is more complex. We must take the words of another and translate them into ideas that make sense to us. We have not had the experiences of the speaker. We are not on the inside of his or her point of view. When we listen to others, we can't anticipate, as they can themselves, where their thoughts are leading them. We must continually interpret what others say within the confines of our experiences. We must find a way to enter into their points of view, shift our minds to follow their train of thought.

Consequently, we need to learn how to listen actively and critically. We need to recognize that listening is an art involving skills that we can develop only with time and practice. We must realize, for example, that to listen and learn from what we are hearing, we need to learn to ask key questions that enable us to locate ourselves in the thought of another: "I'm not sure I understand you when you say..., could you explain that further?" "Could you

give me an example or illustration of this?" "Would you also say ...?" "Let me see if I understand you. What you are saying is... Is that right?" "How do you respond to this objection?"

Critical readers ask questions as they read and use those questions to orient themselves to what an author is saying. Critical listeners ask questions as they listen to orient themselves to what a speaker is saying: "Why does she say that? What examples could I give to illustrate that point? What is the main point? How does this detail relate to the main point? That one? Is he using this word as I would, or somewhat differently?" These highly skilled and activated processes are crucial to learning. We need to heighten student awareness of and practice in them as often as we can.

S-23 Making Interdisciplinary Connections

Principle: Although in some ways it is convenient to divide knowledge up into disciplines, the divisions are not absolute. Critical thinkers do not allow the somewhat arbitrary distinctions between academic subjects to control their thinking. When considering issues which transcend subjects (and most real-life issues do), they bring relevant concepts, knowledge, and insights from many subjects to the analysis.

They make use of insights from one subject to inform their understanding of other subjects. There are always connections between subjects. To understand, say, reasons for the American Revolution (historical question), insights from technology, geography, economics, and philosophy can be fruitfully applied.

S-24 Practicing Socratic Discussion: Clarifying and Questioning Beliefs, Theories, or Perspectives

Principle: Critical thinkers are nothing if not questioners. The ability to question and probe deeply, to get down to root ideas, to get beneath the mere appearance of things, is at the very heart of the activity. And, as questioners, they have many different kinds of questions and moves available and can follow up their questions appropriately.

They can use questioning techniques, not to make others look stupid, but to learn what they think, help them develop their ideas, or as a prelude to evaluating them. When confronted with a new idea, they want to understand it, to relate it to their experience, and to determine its implications, consequences, and value. They can fruitfully uncover the structure of their own and others' perspectives. Probing questions are the tools by which these goals are reached.

Furthermore, critical thinkers are comfortable being questioned. They don't become offended, confused, or intimidated. They welcome good questions as an opportunity to develop a line of thought.

S-25 Reasoning Dialogically: Comparing Perspectives, Interpretations, or Theories

Principle: Dialogical thinking refers to thinking that involves a dialogue or extended exchange between different points of view. Whenever we consider concepts or issues deeply, we naturally explore their connections to other ideas and issues within different points of view.

Critical thinkers need to be able to engage in fruitful, exploratory dialogue, proposing ideas, probing their roots, considering subject matter insights and evidence, testing ideas, and moving between various points of view. When we think, we often engage in dialogue, either inwardly or aloud with others. We need to integrate critical thinking skills into that dialogue so that it is as useful as possible. Socratic questioning is one form of dialogical thinking.

S-26 Reasoning Dialectically: Evaluating Perspectives, Interpretations, or Theories

Principle: Dialectical thinking refers to dialogical thinking conducted in order to test the strengths and weaknesses of opposing points of view. Court trials and debates are dialectical in intention. They pit idea against idea, reasoning against counter-reasoning in order to get at the truth of a matter. As soon as we begin to explore ideas, we find that some clash or are inconsistent with others.

If we are to integrate our thinking, we need to assess which of the conflicting ideas we will provisionally accept and which we shall provisionally reject, or which parts of the views are strong and which weak, or how the views can be reconciled.

Children need to develop dialectical reasoning skills, so that their thinking not only moves comfortably between divergent points of view or lines of thought, but also makes some assessments in light of the relative strengths and weaknesses of the evidence or reasoning presented. Hence, when thinking dialectically, critical thinkers can use critical micro-skills appropriately.

S-27 Comparing and Contrasting Ideals with Actual Practice

Principle: Self-improvement and social improvement are presupposed values of critical thinking. Critical thinking, therefore, requires an effort to see ourselves and others accurately. This requires recognizing gaps between ideals and practice. The fairminded thinker values truth and consistency and so works to minimize these gaps.

The confusion of facts with ideals prevents us from moving closer to achieving our ideals. A critical education strives to highlight discrepancies between facts and ideals, and proposes and evaluates methods for minimizing them. This strategy is intimately connected with "developing intellectual good faith".

S-28 Thinking Precisely About Thinking: Using Critical Vocabulary

Principle: An essential requirement of critical thinking is the ability to think about thinking, to engage in what is sometimes called "metacognition". One possible definition of critical thinking is the art of thinking about your thinking while you're thinking in order to make your thinking better: more clear, more accurate, more fair.

It is precisely at the level of "thinking about thinking" that most critical thinking stands in contrast to uncritical thinking. Critical thinkers can analyze thought-take it apart and put it together again. For the uncritical thinker, thoughts are "just there".

"I think what I think, don't ask me why." The analytical vocabulary in the English language (such terms as 'assume', 'infer', 'conclude', 'criterion', 'point of view', 'relevance', 'issue', 'elaborate', 'ambiguous', 'objection', 'support', 'bias', 'justify', 'perspective', 'contradiction', 'consistent', 'credibility', 'evidence', 'interpret', 'distinguish') enables us to think more precisely about our thinking. We are in a better position to assess reasoning (our own, as well as that of others) when we can use analytic vocabulary with accuracy and ease.

S-29 Noting Significant Similarities and Differences

Principle: Critical thinkers strive to treat similar things similarly and different things differently. Uncritical thinkers, on the other hand, often don't see significant similarities and differences. Things superficially similar are often significantly different. Things superficially different are often essentially the same.

Only through practice can we become sensitized to significant similarities and differences. As we develop this sensitivity, it influences how we experience, how we describe, how we categorize, and how we reason about things. We become more careful and discriminating in our use of words and phrases.

We hesitate before we accept this or that analogy or comparison. We recognize the purposes of the comparisons we make. We recognize that purposes govern the act of comparing and determine its scope and limits.

The hierarchy of categories biologists, for instance, use to classify living things (with Kingdom as the most basic, all the way down to sub-species) reflects biological judgment regarding which kinds of similarities and differences between species are the most important biologically, that is, which distinctions shed the most light on how each organism is structured and lives.

To the zoologist, the similarities between whales and horses are considered more important than their similarities to fish. The differences between whales and fish are considered more significant than differences between whales and horses. These distinctions suit the biologists' purposes.

S-30 Examining or Evaluating Assumptions

Principle: We are in a better position to evaluate any reasoning or behavior when all of the elements of that reasoning or behavior are made explicit. We base both our reasoning and our behavior on beliefs we take for granted. We are often unaware of these assumptions. Only by recognizing them can we evaluate them.

Critical thinkers have a passion for truth and for accepting the strongest reasoning. Thus, they have the intellectual courage to seek out and reject false assumptions. They realize that everyone makes some questionable assumptions. They are willing to question, and have others question, even their own most cherished assumptions. They consider alternative assumptions.

They base their acceptance or rejection of assumptions on their rational scrutiny of them. They hold questionable assumptions with an appropriate degree of tentativeness. Independent thinkers evaluate assumptions for themselves, and do not simply accept the assumptions of others, even those assumptions made by everyone they know.

S-31 Distinguishing Relevant From Irrelevant Facts

Principle: To think critically, we must be able to tell the difference between those facts which are relevant to an issue and those which are not. Critical thinkers focus their attention on relevant facts and do not let irrelevant considerations affect their conclusions. Whether or not something is relevant is often unclear; relevance must

often be argued. Furthermore, a fact is only relevant or irrelevant in relation to an issue. Information relevant to one problem may not be relevant to another.

S-32 Making Plausible Inferences, Predictions, or Interpretations

Principle: Thinking critically involves the ability to reach sound conclusions based on observation and information. Critical thinkers distinguish their observations from their conclusions. They look beyond the facts, to see what those facts imply. They know what the concepts they use imply.

They also distinguish cases in which they can only guess from cases in which they can safely conclude. Critical thinkers recognize their tendency to make inferences that support their own egocentric or sociocentric world views and are therefore especially careful to evaluate inferences they make when their interests or desires are involved. Remember, every interpretation is based on inference, and we interpret every situation we are in.

S-33 Giving Reasons and Evaluating Evidence and Alleged Facts

Principle: Critical thinkers can take their reasoning apart in order to examine and evaluate its components. They know on what evidence they base their conclusions. They realize that un-stated, unknown reasons can be neither communicated nor critiqued. They are comfortable being asked to give reasons; they don't find requests for reasons intimidating, confusing, or insulting.

They can insightfully discuss evidence relevant to the issue or conclusions they consider. Not everything offered as evidence should be accepted. Evidence and factual claims should be scrutinized and evaluated. Evidence can be complete or incomplete, acceptable, questionable, or false.

S-34 Recognizing Contradictions

Principle: Consistency is a fundamental-some would say the defining-ideal of critical thinkers. They strive to remove contradictions from their beliefs, and are wary of contradictions in others. As would-be fairminded thinkers they strive to judge like cases in a like manner.

Perhaps the most difficult form of consistency to achieve is that between word and deed. Self-serving double standards are one of the most common problems in human life. Children are in some sense aware of the importance of consistency. ("Why don't I get to do what they get to do?") They are frustrated by double standards, yet are given little help in getting insight into them and dealing with them.

Critical thinkers can pinpoint specifically where opposing arguments or views contradict each other, distinguishing the contradictions from compatible beliefs, thus focusing their analyses of conflicting views.

S-35 Exploring Implications and Consequences

Principle: Critical thinkers can take statements, recognize their implications-what follows from them-and develop a fuller, more complete understanding of their meaning. They realize that to accept a statement one must also accept its implications. They can explore both implications and consequences at length. When considering beliefs that relate to actions or policies, critical thinkers assess the consequences of acting on those beliefs.

{This list is found in the following handbooks: *Critical Thinking Handbook: k-3*, *Critical Thinking Handbook: 4-6*, *Critical Thinking Handbook: 6-9*, *Critical Thinking Handbook: High School*.}

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Our Mission

The Center for Critical Thinking and Moral Critique and the Foundation for Critical educational non-profit organizations — work closely together to promote educational essential change in education and society through the cultivation of fair-minded

Critical thinking is essential if we are to get to the root of our problems and develop reasonable solutions. After all, the quality of everything we do is determined by the quality of our thinking.

Whereas society commonly promotes values laden with superficial, immediate " cultivates substance and true intellectual discipline. Critical thinking asks much of colleagues. It entails rigorous self-reflection and open mindedness — the keys to

Critical thinking requires the cultivation of core intellectual virtues such as intellectual integrity, and responsibility. Nothing of real value comes easily; a rich intellectual curious and determined students —is possible only with critical thinking at the forefront process.

We do not just advocate educational and social reform based on critical thinking alternatives. In a world of accelerating change, intensifying complexity, and increasing thinking is now a requirement for economic and social survival. Join us as we strengthen core social value and a key organizing concept for all educational reform.

The work of the Foundation is to integrate the Center's research and theoretical events and resources designed to help educators improve their instruction. Materials Foundation for Critical Thinking include books, thinker's guides, videos, and other resources. The Foundation and Center for Critical Thinking sponsor an annual International Conference, as well as advanced academies and international academies in Europe